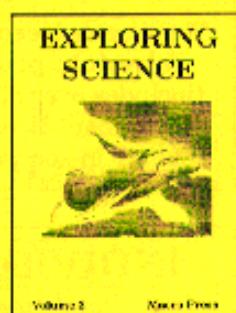
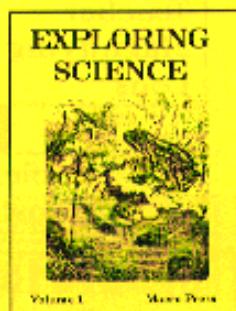
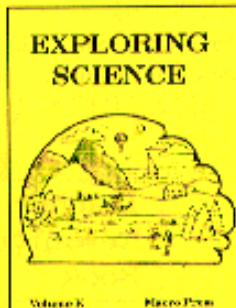
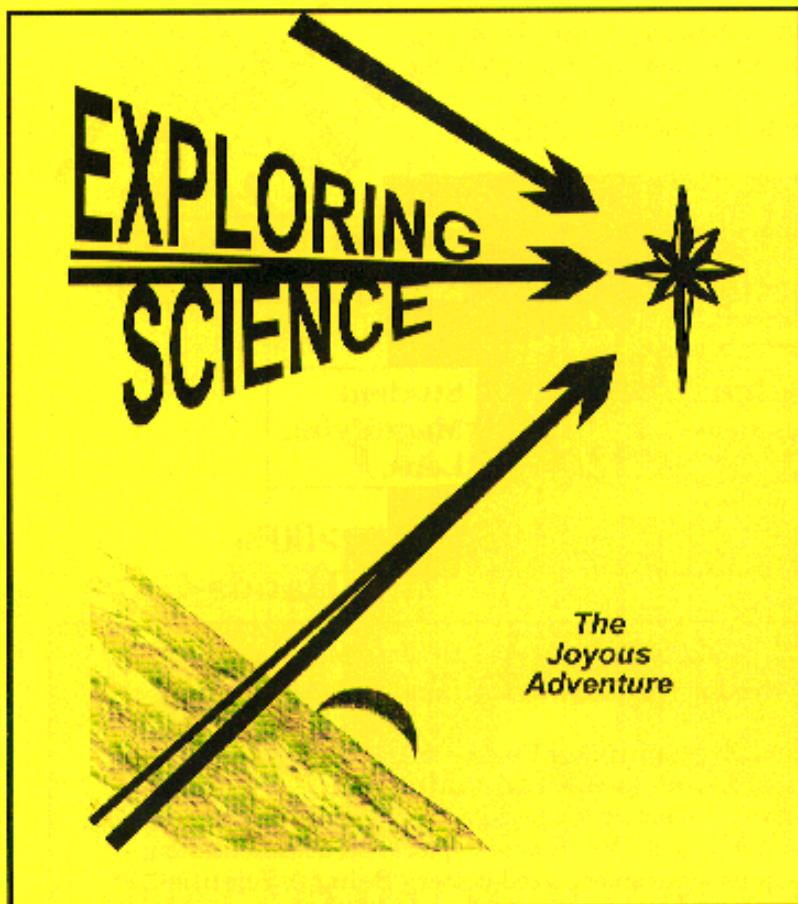
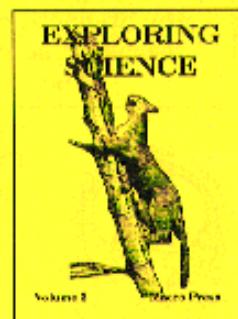
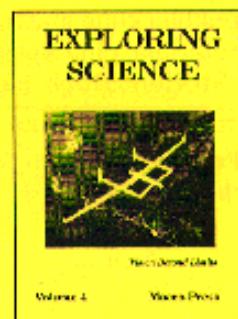
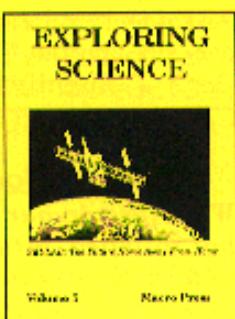
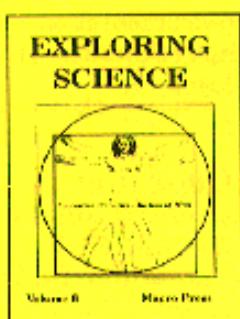


# Launch Young K-6 Scientists



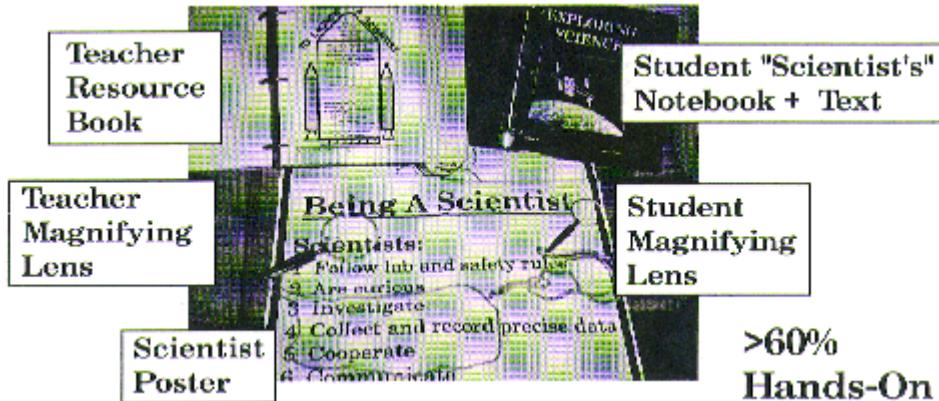
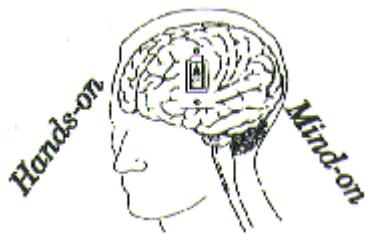
Into The Future  
With Hands-on Explorations



©Copyright 1994, Macro Press

# EXPLORING SCIENCE

EXPLORING SCIENCE is a **K-6 hands-on, minds-on** Project 2061/US Department of Education based complete science program that helps integrate the curriculum. EXPLORING SCIENCE is legally compliant.



## FULL PROGRAM (Teacher Resource + all Student Materials above)

For each Student: Text + Binder + 2" Magnifying Lens = \$15.00

Teacher's Resource Book + 3.5" Magnifying Lens = \$120.00

(absolute proration of teacher materials 1:25 students)

(includes over 300 pages of hands-on activities, background information, one copy of the Student Book, and blackline masters for student exploration documentation, teacher in-service materials, plus a classroom sized poster, "Being a Scientist".)

## INDIVIDUAL PROGRAM (1 each of all materials above)

*Includes the right to copy student materials for your students.*

Teacher's Resource Book + 3.5" Magnifying Lens = \$225

(includes over 300 pages of hands-on activities, background information, one copy of the Student Book, and blackline masters for student exploration documentation, teacher in-service materials, plus a classroom sized poster, "Being A Scientist".)

Plus One Student Book + Binder + 2" Magnifying Lens



Phone/Fax support by the teacher/authors.

18242 Peters Court  
Fountain Valley, CA 92708  
Phone/FAX (714)964-9191

### Money Back Guarantee:

*We believe in our program! If you are not satisfied, return the materials within 30 days in a resalable condition. You will get a full refund!*

# **Money Back Guarantee\***

A Program written in the classroom by active teachers that exceeds the Project 2061 implementation.

## **Color of Vision**

## **Sound of Excitement**

## **Motion of Hands-On**

**Students Gain:**  
Success & Confidence  
Process Skills  
Understanding



**Teachers Gain:**  
Integrated Curriculum  
Success for ALL students  
Mentor Guidance

## **Only EXPLORING SCIENCE (K-6) Offers:**

1. Thematically linked chapter material
2. Integrated Curriculum
3. Sheltered English Training
4. Greater than 60% hands-on
5. Cooperative Learning Strategies
6. Reading Language Arts Teacher Ready
7. Materials affordable for all students
8. Consumables less than \$2 per student per year
- \*9. 30 day MONEY BACK on any returned sellable materials.

**Districts Gain:**  
Budget Protection  
Cooperative Learning  
Teacher Training



**Macro Press**  
**The Active Teacher**  
**Company**

**Bringing  
Science  
To  
Life®**

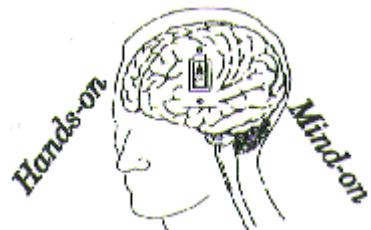
## The EXPLORING SCIENCE Program Organization

"Why?" is a wonderful question. Every child, and every scientist, spends most of his/her day asking why. The question is pertinent to instructional material. Why was it written in the manner that it was? The presentation of known facts is vital to the process of developing knowledge and understanding. However, in an era of rapid scientific discovery, teaching science must be more than mere presenting of "facts", even when learned hands-on. The authors feel that the better way is to concentrate on the scientific process, and to teach the students to question, like Einstein, Darwin, and Leonardo da Vinci. Logical, organized problem solving, especially in groups and teams, is valuable to every person, not just those entering scientific fields. This program has as its first goal the teaching of the student to be a scientific problem solver.

Exploring Science is designed to raise a generation of functional, problem solving, and communicative adults. Grade after grade, each chapter helps the child grow in the ability to gain, organize, process, and communicate what she/he has learned, not only in science, but also in all other subjects. The first chapter teacher the students, beginning in kindergarten, how to be a scientist. Following are theme based chapters using the accepted themes of **Energy, Stability, Patterns of Change, Systems and Interactions, Scale and Structure, and Evolution**. The final chapter is devoted to placing the student into an awareness that the scientist does not work outside of his/her society and environment, the History/Social Science tie.

Through hands-on explorations, the students are shown how scientist solve problems, and why they document as they do, by doing actual work and solving interesting problems. The Student Text is never the primary teaching tool. It is used to integrate the learning into the total curriculum by the use of raps, chants, poetry, and questioning. Even the glossary is hands-on in this program. Using National Academic Excellence Award-winning techniques developed in working with non-English speaking students, the authors have created the concept of an Interactive Glossary. Subject areas integrated throughout the program.

*Language acquisition  
From reading readiness to reading  
From math readiness to math  
Visual and Performing Arts  
History/Social Science  
Current Issues/Technology*



The skills taught are enhanced as the students go up in the grades commensurate with their maturity. At all levels, the students are expected to explain what they have learned through cooperative learning techniques of Pair-Share, Teams, and Conferencing. Heavily used throughout is the graphic organizer. The students are expected to logically organize all of their material. They keep a Scientist's Notebook every year. This notebook is used exactly like Leonardo da Vinci used his notebook, as a reference of what has been seen, tried, and learned. The students are taught how to relate seemingly unrelated data to create new knowledge.

Physical, earth, and life explorations, thematically linked, are placed in the same chapter to insure that the student does not create artificial separations in his/her mind. The purpose is to generalize the knowledge. Every day all humans are faced with problems that seem unfamiliar. Thematic understanding that helps link previous studies, provides "can do" solutions that work. The ability to unify the unfamiliar with the known provides confidence in students.

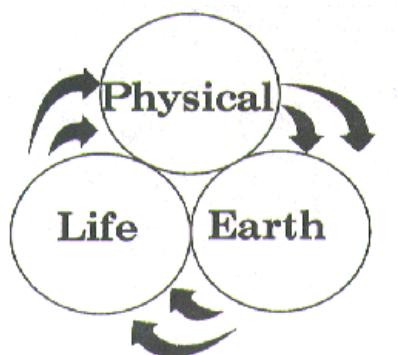
## Science Understanding

*Facts are not enough. We need to be able to apply them!*

Understanding is easier when information is developed actively with hands-on explorations AND is related to other known information. Project 2061, American Association for the Advancement of Science, produced "Science for All Americans", a report defining the rationale for teaching thematically. "Science for All Americans" asked that Physical, Earth, and Life Science be taught at the same time linked by theme to provide true understanding. EXPLORING SCIENCE teaches thematically, but also includes two additional themes. All grade levels, K-6, start with a theme of Being a Scientist to teach process, problem solving, documentation, and communication. They end with a chapter tied to History/Social Science to show how scientists work within a context.

### THEMATICALLY LINKED

Energy  
Stability  
Evolution



Scale and Structure  
Systems and Interactions  
Patterns of Change

### All Grades Themes. Being A Scientist AND History Social Science

|          |  |          |  |
|----------|--|----------|--|
| Grade K: | Scale and Structure<br>Patterns of Change                    | Grade 4: | Scale and Structure<br>Patterns of Change<br>Energy    |
| Grade 1: | Energy<br>Systems and Interactions<br>Evolution              | Grade 5: | Scale and Structure<br>Stability<br>Patterns of Change |
| Grade 2: | Systems and Interactions<br>Scale and Structure<br>Evolution | Grade 6: | Evolution<br>Energy<br>Systems and Interactions        |
| Grade 3: | Energy<br>Systems and Interaction<br>Stability               |          |  |

**Cooperative/Collaborative Learning is used throughout the program.**

# STUDENT APPLICATION

*“Science is the limitless voyage of joyous exploration.”*  
**Walt Whitman**

This is a program where hands-on/minds-on explorations are the heart.  
The student text supports, adds, and clarifies content.



*4th - Testing out the mystery materials*



*5th - Testing Parallax*



*3rd - Discovering the hardness of an egg shell*



*1st - Using a level*



*2nd - Observing chemical Change*



*6th - Preparing a volcano simulation*



*K - Discovering shadows*



## ***Being a Scientist***

### **Scientists:**

- 1 Follow lab and safety rules
- 2 Are curious
- 3 Investigate
- 4 Collect & record precise data
- 5 Cooperate
- 6 Communicate
- 7 Seek answers
- 8 Ask new questions
- 9 PERSIST

©Copyright 1994, Maco Press

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Scientist: \_\_\_\_\_

### **Being A Scientist**

Scientists: \_\_\_\_\_ Scientist Is: \_\_\_\_\_ I Am: \_\_\_\_\_

2 Are curious

|                                   |       |
|-----------------------------------|-------|
| 3 Investigate                     | _____ |
| 4 Collect and record precise data | _____ |
| 5 Cooperate                       | _____ |
| 6 Communicate                     | _____ |
| 7 Seek Answers                    | _____ |
| 8 Ask new questions               | _____ |
| 9 Persist                         | _____ |

3 Investigate

4 Collect and record precise data

5 Cooperate

6 Communicate

7 Seek Answers

8 Ask new questions

9 Persist

©Copyright 1994, Maco Press

# **How a scientist thinks.**



Dr. Elena Gonzales

"I am a Mexican woman whose engineer father worked hard and had most of his money invested. What is your answer?"

You ask too many questions! You never stopped until that in the Hitler girl with the brown eyes and spiky hair.

Elena was born in Mexico in 1943. She went to work when she was very young. She helped her parents pick fruit and vegetables for the owners of the big ranches. The whole family had to work to make enough money to buy food and clothes. It was hard work for a little girl, and she had hurt. She was unhappy, but not because of the hard work or because work. Elena wanted to go to school and the work kept her from her dream.

When Elena was six, her family moved to the United States. "An American piano player in our church said, 'I am going to school! I am going to school!' Elena and everyone. She could hardly wait. Elena knew that she would find the answers to her questions in school. When the Gonzales family got to Texas, they worked for the owners of a huge ranch. This was really a poor school, but it could afford them. They had to build and move out that far.

Elena asked so many questions about the things she learned that her family decided to send her to the city where she could live with a school and go to school.

Elena grew up in her mother's home. If her mother understood, she did not say anything. She asked so many questions that her cousin said her back hurt. But then, Elena continued hoping.

When Elena was nine, her father found a job in the city. Elena's dream came true. She started school. She found a job. She did not speak English very well. She asked her question in Spanish. Her teacher also spoke Spanish, but she was busy. "Elena, should you ask too many questions?" Elena came home from school and listened to a program on the radio, called "The Quiz Kids." These of Elena knew the answers to many questions and Elena learned them all.

In junior high school, Elena tried to clean the house, a good home, and teachers who enjoyed her questioning mind. The class she loved was science. The teacher was Margaret. They were both and wanted to investigate together. Elena won the first "Inventor" award, when she made a model of a car with a motor in the front and a fan at the back.

When Elena graduated from junior high school, she wanted to go to college and her parents were able to pay for her education. Elena wanted to go to college too, but her parents had no money to send her. They wanted their certain daughter to follow her dream, but they were afraid of failure. Finally they agreed.

Elena applied interest in college. She thought she would be a teacher. A professor called her into his office. "You do know your questioning mind. Why don't you become a research scientist?" he asked. "Research scientists are question about the world we live in and they use their knowledge to find the answers."

Elena studied cellular biology, the science of how cells grow and live. Now she is now DR. ELENA GONZALES and the works in her own laboratory. She is also a teacher. One year she took the teenagers together with the student who asked too many questions? I don't



### **Scientific Thinking Processes:**

1. OBSERVE things in a precise way.
2. COMMUNICATE their ideas so others can understand and expand on them.
3. COMPARE what is known against what is not known.
4. CATEGORIZE their findings into groups or classes.
5. RELATE their findings into cause and effect relationships.
6. INFERR what can happen based on their previous knowledge and as their knowledge grows.
7. APPLY this knowledge to new purposes.

©Copyright 1994, Maco Press

|                       |             |
|-----------------------|-------------|
| Name: _____           | Date: _____ |
| I Have New Questions. |             |
| How I Found Out.      |             |
| What I Found Out.     |             |
| What I Want To Know.  |             |
| What I Know about ... |             |

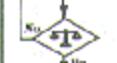
Adapted from Lerner Tally, "Highlighting My Strengths"

©Copyright 1994, Marco Press

### Science Report

Date: \_\_\_\_\_ Name/s: \_\_\_\_\_

I have a question \_\_\_\_\_



Hypothesis \_\_\_\_\_

Procedure \_\_\_\_\_

Collect / Organize Data \_\_\_\_\_

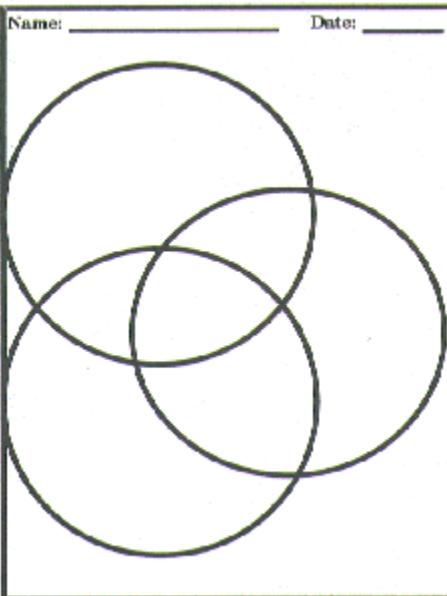
Analysis / Conclusions \_\_\_\_\_

Share Results \_\_\_\_\_

©Copyright 1994, Marco Press

## How a scientist organizes.

Venn Diagram - 3



©Copyright 1994, Marco Press

### Glossary

Term: \_\_\_\_\_

Illustration: \_\_\_\_\_

Definition: \_\_\_\_\_

### Glossary

Term: \_\_\_\_\_

Illustration: \_\_\_\_\_

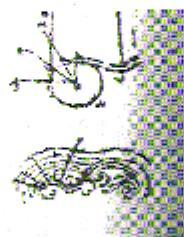
Definition: \_\_\_\_\_

©Copyright 1994, Marco Press

# The Path To Invention



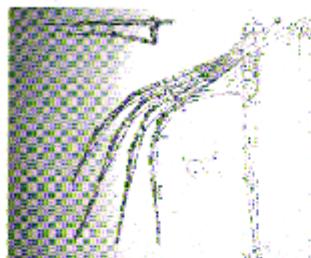
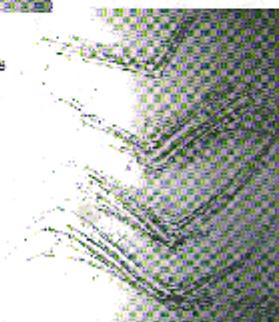
**OBSERVATION:**  
Study the phenomena in detail.



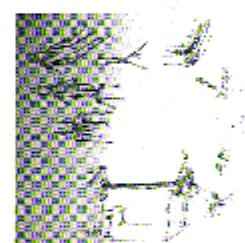
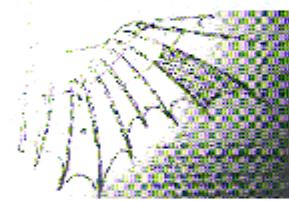
**Grade  
4  
Sample**



**ANALYSIS:**  
What forces and structures  
are acting in phenomena?

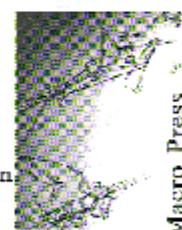


**DESIGN:**  
Create possible means of duplicating  
or improving on observations.



**INTEGRATE:**

Take the components of the design  
and make them work for you!



Da Vinci Drawings Courtesy of:  
Elmer Belk Library of Vinciana  
University of California, Los Angeles

## Making Electric Circuits

### Preparing Two Wires

On the 12" edge of the paper, cut 1" from every corner that you do not need during the circuit assembly, as indicated in red. If the wire is too short, strip 1" of insulation from each end.

**Step:** 

Reserve one corner of the 12" edge to be used by the teacher.

Decorate the edges by cutting wavy lines all along the edges or across the middle and the corners, as indicated in the blue lines of the diagram. When the circuit is complete, the teacher will like it more.

### Battery Holders

With a pencil:



Red Plastic  
Battery  
Holder



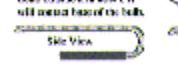
Plastic Battery Holder:  
This is what holds batteries in electric circuits.

### Bath Holders

With a pencil:

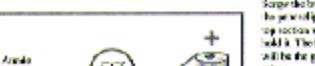


Top View  
Bath  
Holder



Bath and Terminals It  
will hold batteries in the bath.

The two flat pieces  
of metal back them  
up and hold them.

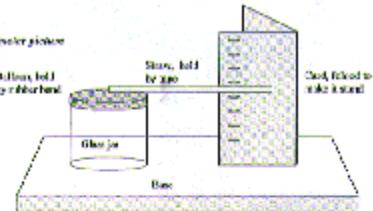


Side View

©Copyright 1994, Macro Press

## MAKING AND USING A BAROMETER

### Barometer



### MAKER III

a. Secure the balloon over the glass and stretch tightly with one other hand. Stretch another by holding the balloon slightly in one hand.

b. Turn the end of the straw. Turn a pencil. Attach the straw to the top of the balloon with a small piece of tape.

c. Secure the straw to the base with a loop of strong tape.

d. Blow the card lengthwise, opening it slightly to make it more flexible, and blow to the base so the balloon begins to move away from the straw.

### MAKER III

a. Record your barometric reading at home, weather station, library, running and walking.

b. Check weather reports.

c. After recording the weather readings, check weather reports the next day, and note your local weather conditions for predicting weather. (Is "When the barometer rises faster than the weather?"

d. Begin predicting the weather for the coming week.

e. After four weeks, what conditions do you have for closing up weather?

©Copyright 1994, Macro Press

grade 6

grade 6

## How to do and document.

grade 5

grade 3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

### Parallax Play

#### Directions:

1. Place a pencil pointing to the middle of the square hole of "A".
2. Sit in a highchair to view the hole.
3. Hold your pencil over the eye of your left eye.



#### 4. Rest Eyes.

5. Rest your eye on the outside edge of the bottom of the square.



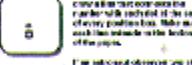
#### 6. Close your left eye.

7. Look at the number in the eye of the paper with your right eye.



#### 8. While the number you see really belongs to the bottom eye, ignore it.

9. Close your right eye and look with your left eye.



#### 10. Repeat steps 7 and 8 for your left eye.

11. Repeat steps 1 through 10 for both eyes.



©Copyright 1994, Macro Press

### Explorations Report #11

### Upsetting The Balance

#### Cause:

State known background information.

#### Effect:

Predict possible outcomes and effects.

#### Plan:

Draw a flowchart indicating an alternative.

#### Implement:

State three or four steps to begin.

#### Test/Witness:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

©Copyright 1994, Macro Press

©Copyright 1994, Macro Press

**Curriculum Connections**

**Curriculum Connections**

**Science** (center)

- History / Social Sciences:** CIVILIZATION - Pictorial timeline map illustrating agricultural areas.
- Reading / Language Arts:**
  - SHOD:** Eric Carle's *The Grouchy Ladybug*, *Charlotte's Web*, *Charlotte's Web* (Book & CD), *Charlotte's Web* (CD).
  - SHODE:** A descriptive book comparing different kinds of insects.
  - SHOG:** An original poem and words by the "Poet of Ice Cream."
- Visual / Performing Arts:**
  - SING:** "The Ants Go Marching."
  - DANCE:** Create original art.
  - PERFORM:** Action for Social Studies unit One.
- Math:** SHOM - how often can you see a fly? Create MUCOMILOMOSH patterns based on number of legs. SHOMOYU, the MUDHUT, have a bug run track in 10 m. Shaka, 2 min.
- Current Issues:** SHOMOYU - ways of controlling insects.
- Technology:** SHOMOYU - my insect on the computer using Logo. Create appropriate paths.

©Copyright 1994, Macro Press

grade 3

**SCIENTISTS ARE CURIOUS**

**GOIN' ON A BUG HUNT**

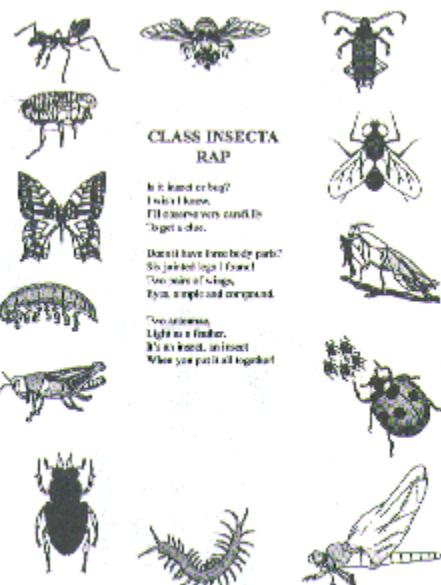
Ladies Boys: The easiest SCDO.  
 Going on a bug hunt  
 Going to spot a lot of them  
 Big bugs, little bugs  
 Maybe just a few slugs  
 Going on a bug hunt  
 Looking under rocks and leaves  
 Looking up in the trees  
 Searching over the school ground  
 Charting all the bugs I found  
 Drawing pictures in my book  
 To remember just the way they look  
 Keeping detailed info—  
 So I'll stay in the know  
 Going on a bug hunt  
 Quacky, set off I go . . .

©Copyright 1994, Macro Press

grade 3

## Integrated curriculum is fun.

grade 3

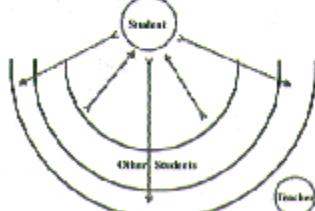


grade 3

**SCIENTISTS' CONFERENCE**

The scientist has come. You are a scientist eager to present your findings at the next SCDO-THIS! CONFERENCE. Scientists are gathered so actively listen to you answer your ideas and do's. You will be sharing your SCIENTISTS' NOTEBOOK along with charts, diagrams, and models.

After your presentation, you will receive lots of positive feedback with comments, no questions, and give helpful suggestions. All scientists use scientific language. All remember below with respect and courtesy.

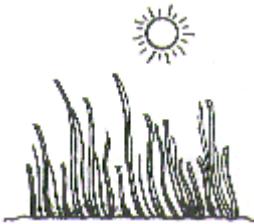


After your presentation, you will receive lots of positive feedback with comments, no questions, and give helpful suggestions. All scientists use scientific language. All remember below with respect and courtesy.

©Copyright 1994, Macro Press

©Copyright 1994, Macro Press

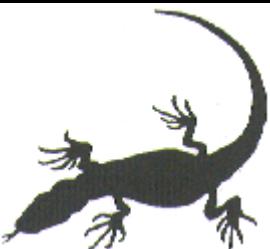
## The Desert That We Know



These are the grasses,  
The desert grasses,  
That grow in the desert  
That we know.

---

This is the grasshopper,  
The lubber grasshopper,  
Who nibbles in the grasses,  
The desert grasses,  
That grow in the desert  
That we know.




---

This is the lizard,  
The fringe-toed lizard,  
Who eats the grasshopper,  
The lubber grasshopper,  
Who nibbles the grasses,  
The desert grasses,  
That grow in the desert  
That we know.



This is the rattlesnake,  
The sidewinder rattlesnake,  
Who swallows the lizard,  
The fringe-toed lizard,  
Who eats the grasshopper,  
The lubber grasshopper,  
Who nibbles the grasses,  
The desert grasses,  
That grow in the desert  
That we know.

---

This is the roadrunner,  
The fast moving roadrunner,  
Who feeds on the rattlesnake,  
The sidewinder rattlesnake,  
Who swallows the lizard,  
The fringe-toed lizard,  
Who eats the grasshopper,  
The lubber grasshopper,  
Who nibbles the grasses,  
The desert grasses,  
That grow in the desert  
That we know.




---

This is the vulture,  
The turkey vulture,  
Who is the scavenger  
Of the desert.  
It feeds on the animals,  
The dead, dead animals,  
That lived in the desert  
That we know.

### Grade 1 Sample Teacher Planner with Curriculum Integration references.

| Explanation:   | Date  | Teacher Notes | Blocker Notes | SmartInfo Remarks    | Home / School  | Outstanding Duties/Issues    |
|--|-------|---------------|---------------|----------------------|----------------|------------------------------|
| <b>Curriculum Integration References:</b>  |       |               |               |                      |                |                              |
| <b>Language Arts</b>   | Weeks | Pg. 22        | Pg. 340       |                      | Parent Page 30 | Math 1, ELA 1, S. 2, Music 2 |
| 1. Poetry  |       |               |               |                      |                |                              |
| 2. Poetry is used to introduce concepts and the week.  |       |               |               |                      |                |                              |
| 3. The children will learn how to make a poem, repeat poems and write their own poems.   |       |               |               |                      |                |                              |
| 4. Poetry Students themselves can make up poems about the nature of the week.  |       |               |               |                      |                |                              |
| 5. The earth receives several things from the sun. This is a cause for the week to be focused on the sun.  |       |               |               |                      |                |                              |
| 6. As the earth revolves around the sun, there will be many parts of the day when it is sunny and other parts of the day when it is cloudy. All things are affected by these seasonal changes. |       |               |               |                      |                |                              |
| 7. Students can make a connection between the different items they have learned about the sun.   |       |               |               |                      |                |                              |
| <b>Links and Resources:</b>  | Weeks | Pg. 30        | Pg. 31        | Expository Pages 46  | Science        | Math 1, ELA 1, S. 2          |
| <b>Literacy Skills:</b>  | Weeks | Pg. 38        | Pg. 33        | Expository Pages 40  | Science        | Math 1, ELA 1, S. 2, Music 2 |
| <b>All Year Research: Weather:</b>   | Weeks | Pg. 32        | Pg. 32        | Expository Pages 418 | Science        | Math 1, ELA 1, S. 2, Music 2 |
| <b>All Year Research: Weather:</b>   | Weeks | Pg. 32        | Pg. 32        | Expository Pages 417 | Science        | Math 1, ELA 1, S. 2, Music 2 |
| <b>All Year Research: Weather:</b>   | Weeks | Pg. 32        | Pg. 32        | Expository Pages 417 | Science        | Math 1, ELA 1, S. 2, Music 2 |
| <b>Comments/ Resources:</b>  | Weeks | Pg. 320       |               |                      |                |                              |

grade 1

grade 1

## Aiding integration planning.

grade 2

grade 2

### 5. PHOTOGRAPH

Make a Day Photograph Title 1, "How Many Petals?" Divide color paper into 10x10s. Over each one draw a different number of circles with five petals each. Then have the class figure how many petals each flower has. You can use this as a center counting by 5's and to practice writing by 5's. Once you have finished, have the students count "This, ten, fifteen, twenty, twenty-five" and then think of the next pattern for them (or the first dozen, etc.)

| HOW MANY PETALS? |    |
|------------------|----|
| 5                | 5  |
| 10               | 10 |
| 15               | 15 |
| 20               | 20 |
| 25               | 25 |
|                  |    |
|                  |    |
|                  |    |
|                  |    |
|                  |    |

### Estimating and Recording

#### 1. HOME GARDEN SURVEY

Bring different kinds of fruits and vegetables which have seeds that are fairly easy to get out. Fruits and vegetables such as carrots, oranges, apples, bell peppers, pea pods, peaches, and avocados are good sources of seeds. Write the names of the samples you have brought on the board. Ask the students to have each student take a piece of each sample and carefully count and total their predictions under the appropriate name. Once the predictions are completed, you can calculate the range from the lowest, as well as the highest number of predicted seeds for each fruit and vegetable. Then place each fruit and vegetable in a small graph on the wall. Have the groups report their total findings. More than actual counts of seeds on the chart board under the names. Compare predictions to actual counts.



A 5x5 GRATE



The reading connections may work together to allow for the personal choice for each student. These activities allow students to interpret and apply the learning from this unit. The presentation should be done in formal writing after each point on.

1. Read the Drama, Caught by Tudor May. Using the cooperative team, T3A, students will illustrate all the living and non-living parts found in the story. Have the students make four choices and four sets of the following categories. Then have on the problem and prey found in the story. Predictions are included for both living and non-living prey and animals who are caught and eaten. Identify the roles of the teacher, organizer, discusser, director, writer, illustrator, recorder and the role of the helper. Have each student or partner identify what the role of the story and write a short script describing the organization with the use of dialogue. These presentations can be done in a narrative form, in story-telling form, or in a question form in which the chosen situations are presented with short descriptions and facts. Allow enough time for preparation and practice before the presentation.

Another choice for the writing process might be poetry writing from a frame.

2. Using the following frames, students may select their own format and title their own right, reason, form, etc.

Title: \_\_\_\_\_  
Topic: \_\_\_\_\_  
Context with the living  
things involved:

Date: \_\_\_\_\_  
Level: \_\_\_\_\_  
Editor: \_\_\_\_\_  
Title: \_\_\_\_\_

Date: \_\_\_\_\_  
Title: \_\_\_\_\_  
Context with the living  
things involved:

**Visual and Performing Arts** **X** **Science**

**ART**

To go with Exploration 2: Bridges and Models.

This exploration will give you the perfect opportunity to study bridges, their types, historical significance, and milestones.

1. There are six basic types of bridges. How do students categorize them? Build it using readily available materials. For each bridge type, have students draw a sketch.

|  |   |
|--|---|
| <br>beam bridge | <br>truss bridge |
| A beam bridge is horizontal beam rests on vertical supports.                                     |   |
| A truss bridge is built with light trusses to support.   |   |

|  |  |
|--|--|
| <br>arch bridge | <br>suspension bridge |
| The arch bows inward and pushes against abutments.   |  |
| Mighty cables weighing tons hold up suspension bridge.   |  |

|  |  |
|--|--|
| <br>beam bridge | <br>cable-stayed bridge |
| The beam is balanced above bridge, (over dotted lines).  |  |
| Built on floating devices more than stable columns.  |  |

**Reading / Language Arts** **X** **Science**

**Reading and Writing throughout the year**

1. **Explorers: Who Was Long?** Diane Stanley-Dickens, Ten Century Associates Book, 1992.

This is an excellent book to use as a anchor reading and background for writing throughout the unit.

The first chapter deals with "Prince Henry the Navigator" and his quest for knowledge. He sent ships south from Portugal to explore the coast of Africa and Spain. He also ordered them to explore north and west across the Atlantic to the Azores and Japan (new world). Many explorers were funded by the king of Spain and Japan (new world). This can be combined with a study of geography, history, etc.

2. **Create a Business Plan** for one of the explorers that you are studying. Use this as an exercise of "Migrant Power Prints." The compass directions are used to communicate their product; however, it is interesting and informative way of writing about explorers and their explorations.

The separate section can consist of sheets of paper or transparency.

**Plan of the Business Plan** presented to the consideration of His Majesty Queen Isabella Christopher Columbus of Spain, March 14, 1492

|   |  |
|---|--|
| <br>Market Research | <br>A New Trade Route |
| 1. Identify the market research information and its importance to the success of the business.        |  |
| 2. Identify the new trade route information and its importance to the success of the business.        |  |
| 3. Proposed Exports   |  |
| 4. Export Plan  |  |

grade 5

grade 5

## Aiding integration planning.

grade 6

grade 6

**History / Social Science** **X** **Science**

**HISTORY/SOCIAL SCIENCE**

Introduces a civilization, "Spartan Earth," that considers resources, geology, and environment. Students solve decisions in society which reflect A.I. principles.

1. Students learn agriculture is used in tropical areas around the world in many ways of producing food around the world. The diagram:

- 1. Tropical forest
- 2. Forest fallow
- 3. Burn dead and dry meat
- 4. Plant seeds in ash
- 5. Society crops are acceptable, but after about five years, the inhabitants are gone due to heavy rainfall (below the Equator country).
- 6. Farmers move to a new area.

2. The measure of the land is being changed and the effects are felt through the world. Show them how to avoid change and that bad it? What are the real questions? If so, predict identify questions and positions.

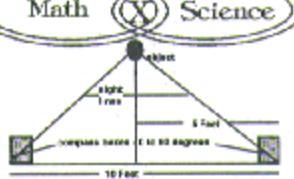
3. Often people take developed nation point to the underdeveloped nations in highly industrialized countries. They suggest that industrial is very on the world's side, but sound by a few. How to live sustainably? Do the use of oil and gas agree? How is it different? Listen to the content and come up with solutions.

4. Upon what source of energy did ancient peoples depend? Do we still use? Do we change? If we depend upon only those sources? Would our technology make a difference in the potential quality of life?

5. What are connections related to Energy and the explorations in 2A and 2B? Some are:  
 - engine-electrical, mechanical, and motion.  
 - electric  
 - nuclear  
 - wind  
 - solar  
 - hydroelectric  
 - conservation programs  
 - geothermal  
 - solar radiation  
 - hydroelectric  
 - fossil fuel

For other related content, Research one. What must students do to prepare for a competition \_\_\_\_\_?

**Math** **X** **Science**



1. Do the triangulation exercise. See Engineering Science, grade 5. Use Grade 5 Resource Master.

2. Measure the length of the bases of each student in the class. To get the same measurement on each student, interchange. Measure from the middle of the knee down to the top of the hip bone, just below where you feel the hips to be. What is the average length? What is the range? How much variation exists between the range and the average?

3. Use protractor, various measuring units. Plot the class average for math and science classes, the variables.

4. Make a ruler histogram and plot the points for each of the students on it. When are we interested for the right edge, number at right? Do the children like average. If that number the score is the center score. What is the average? What is the standard? Once check if the numbers are in order. If they are not, then you will need to sort them. In turn, different scores are on the same line?

5. Measure 10 feet of your right hand. Measure around the base of the hand. Compare 10 inches versus 10 feet. Length of your right foot, 10 feet. Try both your left hand and foot.

What is the average foot length in class? Compare the average length of steps. Are they a percentage of the size?

Nine week long K-6 sample  
lessons available for \$5.00  
refundable on any book  
purchase.

## ORDER

Name \_\_\_\_\_  
School District \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_

| Product | Description       | Price  | Quantity | Total |
|---------|-------------------|--------|----------|-------|
| Poster  | Being A Scientist | \$2.00 |          |       |
| Poster  | Path to Invention | \$2.00 |          |       |
| Poster  | Whale             | \$2.00 |          |       |
| Poster  | Energy            | \$2.00 |          |       |

*Note:*

*For curriculum materials description, see the inside front cover.*

*Full Program - Teacher manual \$120 (prorated), student materials \$15 each.*

*Individual Program - complete basic program \$225 (you copy student pages for your students,  
magnifying lenses optional.)*

| grade level | Description | Price | Quantity | Total |
|-------------|-------------|-------|----------|-------|
|             |             |       |          |       |
|             |             |       |          |       |
|             |             |       |          |       |
|             |             |       |          |       |
|             |             |       |          |       |
|             |             |       |          |       |

### OPTIONAL ITEMS

|        |                  |        |  |  |
|--------|------------------|--------|--|--|
| Lens   | Student          | \$4.00 |  |  |
| Lens   | Teacher          | \$7.50 |  |  |
| Binder | Student (3 ring) | \$2.50 |  |  |

Purchase \_\_\_\_\_  
Tax @ 7.75% (CA) \_\_\_\_\_  
Total \_\_\_\_\_



**Bringing  
Science  
To  
Life®**

Send order to:  
Macro Press  
18242 Peters Court  
Fountain Valley, CA 92708



**Macro Press**

**Bringing  
Science  
To  
Life<sup>®</sup>**